

What is claimed is:

- 1 1. A surveillance system, comprising:
2 a sensor subsystem for providing real time spherical image data and surveillance data;
3 a network operatively coupled to the sensor system for delivering the spherical image
4 data and surveillance data to a management console; and
5 a management console operatively coupled to the network for receiving the spherical
6 image data and the surveillance data and generating a spherical view display
7 using the spherical image data and a situational awareness management
8 display using the surveillance data.
- 1 2. The system of claim 1, wherein the sensor subsystem provides non-image data to the
2 management console via the network and the management console displays the non-image data
3 on the situational awareness management display together with the surveillance data.
- 1 3. The system of claim 1, further comprising:
2 a data repository image database operatively coupled to the network for recording the
3 spherical image data.
- 1 4. The system of claim 3, wherein the data repository image database further comprises:
2 an image recorder for recording the spherical image data; and
3 an image player for playing back the spherical image data on the spherical view
4 display in response to a user request.
- 1 5. The system of claim 3, wherein the data repository supports multiple physical
2 repository types.
- 1 6. The system of claim 1, wherein the sensor subsystem further comprises:
2 an image broadcaster for broadcasting the spherical image data on the network to one
3 or more subscribers.

- 1 7. The system of claim 1, wherein the sensor subsystem further comprises:
2 an image compressor for compressing the spherical image data.
- 1 8. The system of claim 1, wherein the surveillance data is motion detection event data.
- 1 9. The system of claim 1, wherein the sensor subsystem further comprises:
2 a motion detection module coupled to the network for generating motion detection
3 event data in response to detecting motion in spherical image data received
4 from the network.
- 1 10. The system of claim 9, where the motion detection module detects motion in a
2 selected portion of the spherical image data received from the network.
- 1 11. The system of claim 1, wherein the situational awareness management display
2 further comprises:
3 a sensor system map for displaying the location of one or more sensors in the sensor
4 subsystem.
- 1 12. The system of claim 1, wherein the situational awareness display includes user
2 controls for setting a zone in the spherical imagery where the motion detection module will
3 perform motion detection.
- 1 13. The system of claim 1, wherein the spherical view display includes user controls for
2 providing a high-resolution image of a selected portion of the spherical view display.
- 1 14. The system of claim 2, wherein the non-image data is alarm data generated by an
2 alarm source.
- 1 15. The system of claim 7, wherein the management console includes an image
2 decompressor for decompressing the spherical image data compressed in the sensor subsystem
3 and displays the decompressed spherical imagery on the spherical view display.

1 16. The system of claim 9, wherein the motion detection module detects motion in the
2 spherical image data by comparing a current spherical video frame to a reference spherical video
3 frame and determining differences according to user defined settings.

1 17. The system of claim 1, wherein the surveillance data is used to track a moving object
2 in the spherical image data.

1 18. The system of claim 1, wherein metadata is generated in the sensor subsystem and
2 transmitted over the network for use by the management console to build the situational
3 awareness display.

1 19. The system of claim 1, wherein at least one of the spherical image data and
2 surveillance data is time stamped.

1 20. The system of claim 9, further comprising:
2 a mirror control operatively coupled to the motion detection module for controlling a
3 pan/tilt/zoom device in response to motion detection event data generated by
4 the motion detection module.

1 21. A method of capturing, delivering and displaying spherical image data and motion
2 detection data to a management console, comprising:
3 capturing real time spherical image data at a sensor subsystem;
4 monitoring the spherical image data for motion;
5 responsive to detection of motion, generating motion detection event data;
6 delivering the spherical image data and motion detection event data to a management
7 console via a network; and
8 at the management console, generating a spherical view display using the spherical
9 image data.

1 22. The method of claim 21, further comprising:
2 generating a situational awareness management display using the motion detection
3 data.

1 23. The method of claim 21, wherein the spherical image data is broadcast to one or
2 more subscribers on the network.

1 24. The method of claim 21, further comprising the steps of:
2 compressing the spherical data at the sensor subsystem; and
3 decompressing the compressed spherical data at the management console prior to
4 display.

1 25. The method of claim 21, further comprising:
2 tracking a moving object in the spherical image data.

1 26. The method of claim 25, further comprising:
2 displaying the moving object on the situational awareness map.

1 27. A management console for a surveillance system, comprising:
2 a processor for receiving spherical image data and surveillance data from a sensor
3 subsystem via a network;
4 a spherical sensor display coupled to the processor for displaying spherical image
5 data; and
6 a situational awareness display coupled to the processor for displaying surveillance
7 data.

1 28. The management console of claim 27, further comprising:
2 a user interface for allowing a user to configure the sensor subsystem.

1 29. A user interface for a surveillance system, comprising:
2 an image receiver for receiving real time spherical image data and surveillance data;

3 a display engine for integrating the spherical image data and surveillance data; and
4 a user interface coupled to the display image for displaying the integrated spherical
5 image data and surveillance data.

1 30. The user interface of claim 29, further comprising:
2 a display portion for displaying a sensor system map showing sensor coverage area.

1 31. The user interface of claim 29, further comprising:
2 a control portion for controlling the display portion of the user interface.

1 32. The user interface of claim 29, wherein the sensor system map is a three-dimensional
2 map showing location and orientation of sensors using location and attitude information
3 associated with the sensors.

1 33. A computer-readable medium having stored thereon instructions which, when
2 executed by a processor in a surveillance system, cause the processor to perform the operations
3 of:
4 receiving spherical image data and surveillance data from at least one sensor;
5 integrating the spherical image data and surveillance data; and
6 displaying the integrated spherical image data and surveillance data on a user
7 interface.

1 34. The computer-readable medium of claim 33, further comprising:
2 tracking a moving object in the spherical image data; and
3 displaying the moving object on the user interface.